ABSTRACT

Method and apparatus to enable detection of a position of an article, and thereby enable maintenance of a desired position thereof. The apparatus includes an illumination unit, focusing optics and a focus detection unit, the focusing optics serving to direct incident light toward the article and directing light returned from an illuminated elongated region on the article toward the focus detection unit. The focus detection unit includes an optical system that collects the returned light passed through the focusing optics and creates at least two images in the form of at least two interference patterns, respectively, on the sensing surface of a detector. The first interference pattern is created by interference of light components of the collected light that propagated within a first periphery region of an optical axis of the focusing optics and light components of the collected light that propagated within a paraxial region of the optical axis. The second interference pattern is created by interference between light components of the collected light that propagated with a second periphery region of the optical axis, symmetrical to the first periphery region with respect to the optical axis. and light components of the collected light that propagated within the paraxial region. Data indicative of a relation between intensity profiles in the two interference patterns is utilized to determine the location of the article relative to the focal plane.